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OPEN LETTERS.

A cheap and excellent plant press.

A board with weights is a good press except where one moves around upon his collecting tours. In this case something more portable is desired. I discard as clumsy all presses formed of wood. Several forms are advertised, yet I have seen none that meet the requirements for lightness, strength and portability. The common board with weights, while it is most often used, does not permit free circulation of the air, hence specimens dry exceedingly slowly in this way. The press described below is one which any tinner can make, and excels any of the manufactured presses which have come to my notice.

Out of common coppered iron wire three-sixteenths inch in diameter, two rectangles, each twelve by eighteen inches, are made. The tinner then solders a sheet of galvanized wire screen, with about one-fourth inch mesh, upon these frames. The edges of the wire screen should be turned up over the wire. One of these frames, after having the screen soldered on, is taken for the bottom piece, and three pieces of the same kind of wire are soldered at equal distances crosswise on the side of the bottom frame which is not to come in contact with the dryers. At the six points where the ends of these crosspieces are soldered to the frame, pieces of suitable chain are rigidly soldered. On the other frame three pieces which are long enough for each end to project about three-eighths of an inch are soldered. These ends are doubly bent to fit snugly around the wire of the rim and to afford curved hooks upon which the links of the chains attached to the other piece may be hooked. These ends can be bent cold and trued up with the file. For the chain I used dog-chain having links about one inch in length. In this press plants, if exposed to the sun and wind, dry with surprising rapidity, and the resulting specimens possess a freshness and pliability that are not secured with presses of other kinds. The press costs from $1 to $1.50.

I use a similar though much lighter press for a portfolio, attaching a shoulder-strap by means of light snaps upon the ends for carrying. I snap the fastenings over the wire on one of the edges of the bottom piece.

Blackburn University, Carlinville, Ill. WM. E. ANDREWS.

NOTES AND NEWS.

DR. B. D. HALSTED has a very interesting paper on the doubling of flowers in *Popular Science Monthly* for July.

PROFESSOR L. M. UNDERWOOD, of Syracuse University, has been granted a year's leave of absence. He will spend the time chiefly at Cambridge in the prosecution of some special work.

A PRELIMINARY list of the mosses of Staten Island has been published by Mrs. Elizabeth G. Britton. The list represents the collections of eight years, and includes one hundred and one species.

MR. C. R. ORCUTT, of San Diego, California, is making a special study of the *Cactaceæ*, and would be glad to receive living plants or other material from any locality. He desires to cultivate all the varieties possible.

M. HENRI JUMELLE begins, in the last June number of the *Revue général de Botanique*, a capital review of the works on vegetable physiology and chemistry, published between July, 1889, and April, 1890.

MR. EDMUND G. BAKER is doing good service in bringing together information concerning the genera and species of *Malveæ*, in *Jour. Bot.* It is a group that sadly needs monographing, and is an exceedingly perplexing one on our southern borders, which are so largely tinctured with Mexican forms.

THE *Journal of Botany* (July) gives an interesting account of the changes at Kew, and pays a handsome tribute to the services of the three botanists concerned, Professor Oliver, the retiring curator, Mr. J. G. Baker, the new curator, and Mr. Hemsley, who takes Mr. Baker's former position as assistant curator.

BOTANICAL ARTICLES in *Zoe*, for June, are: Heterosporous fern allies of the Pacific coast and Mexico, by Lucien M. Underwood (in which a new Isoetes is described); Brodiæa multiflora, by Carl Purdy; The plants of Santa Catalina Island (with 2 plates), by T. S. Brandgee; Naturalized plants of Southern California, III, by S. B. Parish; Pappus of Microseris, by T. S. Brandegee.

MESSRS. UNDERWOOD & COOK have just issued the seventh and eighth decades of their Hepaticæ Americanæ in the same neat form as previous decades. Only a few sets of the two previous decades are left and the price is now $1.50. The sets of illustrative fungi prepared by the same authors have been sold with the exception of three copies. Sets were mostly purchased by colleges and experiment stations.

THE DUTCH SOCIETY of Sciences in Harlem has announced a prize of a gold medal or 150 gulden for the solution of the following problems: The role of bacteria in the destruction and formation of the nitrogenous compounds in different sorts of soils; or, the mode in which different parts of plants can unite with each other, and particularly the phenomena of healing which accompany the operations of grafting by scions, buds or contact. The papers may be written in Dutch, German, Latin, *etc.* (which may be supposed to include English), and must be sent to Dr. J. Bosscha, in Harlem, before January 1, 1891.

MR. C. MULLER has recently given special attention to the discrimination of the various forms of collenchyma. He is able to distinguish the following: 1, Collenchyma proper with the thickening chiefly in the corners of the cells; 2, Bast collenchyma, with the thickening involving the whole wall; 3, Cartilage collenchyma, with walls thickened strongly all around and with a sharply differentiated inner lamella, so that the section resembles the section of cartilage, apparently separate tubes imbedded in a homogeneous matrix; 4, Plate collenchyma, with only tangential walls thickened; 5, Rift collenchyma, with only that portion of the wall thickened which borders on an intercellular space; 6, Metacollenchyma, formed by the slow death of the cell and the metamorphosis of the cell wall; and finally, 7, a form which resembles in shape the true hard bast, Protosclerenchyma (Haberlandt's "provisorisches Collenchym"). Collenchyma in general is to be considered as in its nature a water-storing tissue, but one which early acquires a mechanical function. It constitutes a supporting tissue not only during intercalary growth and entension of the organ, but remains particularly in herbaceous plants as a permanent mechanical tissue. Cf. *Ber. d. deutsch. Bot. Gesells.* viii. 150.